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CLASS – 9

MATHEMATICS

Chapter – 6

Lines and Angles

Part – 4

Exercise 6.1 (4 to 6)

Vikas Saini

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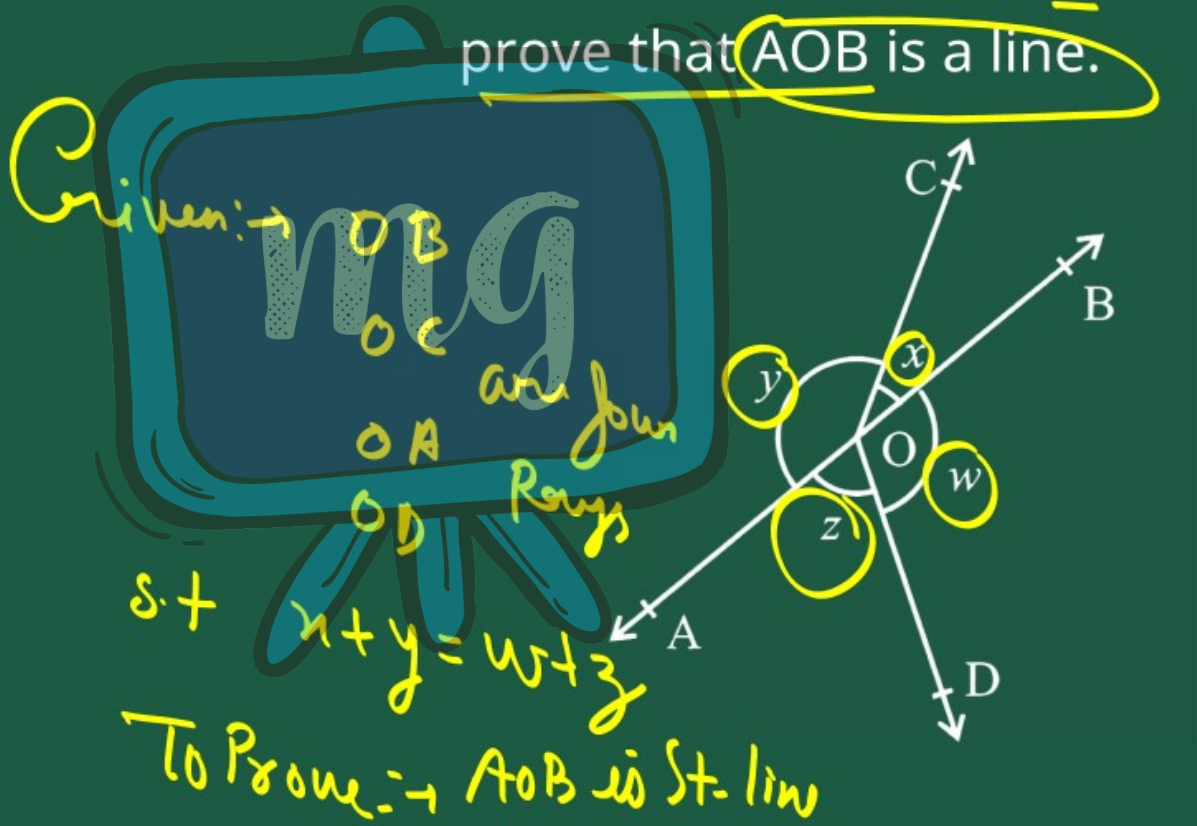
4. In Figure, if x + y = w + z, then prove that AOB is a line.



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Solution: Sum of all angle on a Single point is 360°

So Sum of angles at O point

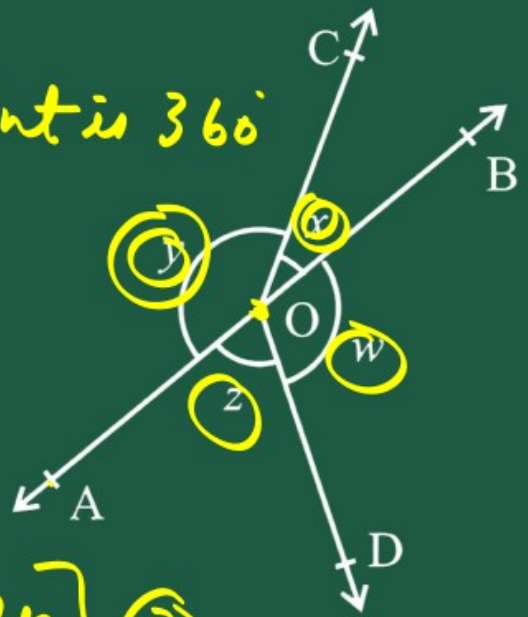
$x + y + w + z = 360°$ — (1)

Now

$x + y = w + z$ [Given] — (2)

From eq (1) & (2)

$x + y + x + y = 360°$



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$(x+y)+(x+y)=360^\circ$

$2(x+y)=360^\circ$

$x+y=\frac{360^\circ}{2}$

$x+y=180^\circ$

$a+q=2q$

$\parallel y$

$w+z=180^\circ$

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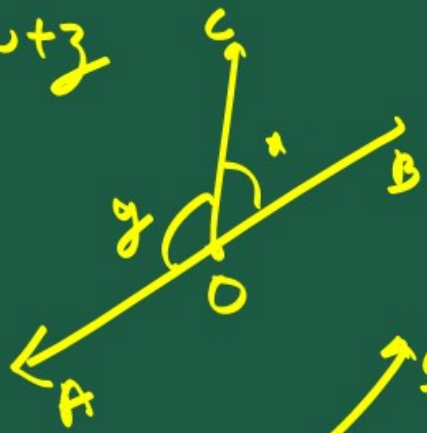
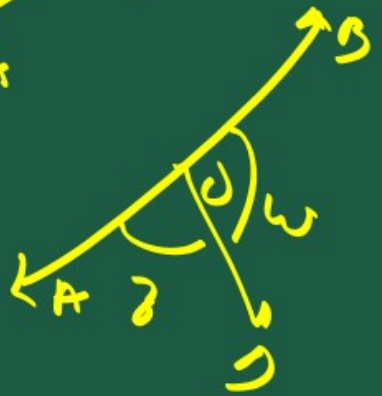
$\angle AOB = x + y = w + z$

$\angle AOB = 180^\circ$

$\therefore$ AOB is St line





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Given: POQ is St. line

∴ OR ⊥ PQ at O

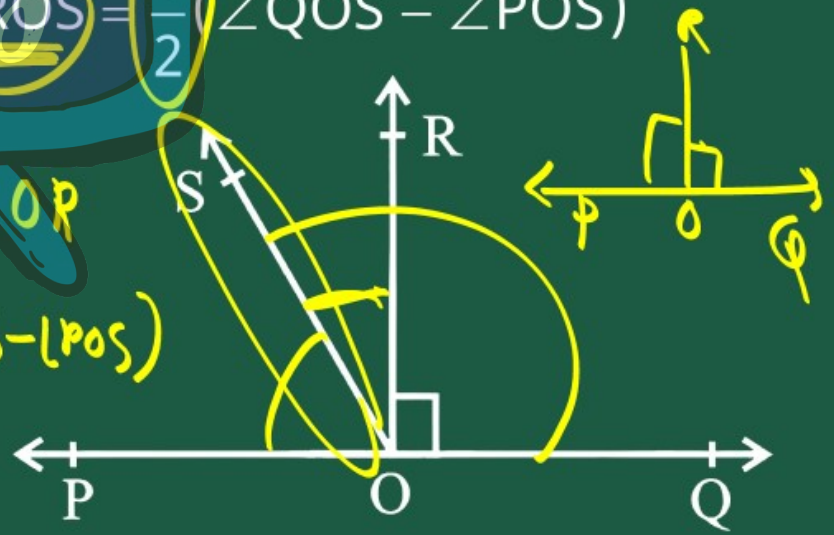
∠ROQ = 90° = ∠POR

& Ray OS lie in btw Ray OP & OR

To prove: ∠ROS = $\frac{1}{2}$(∠QOS − ∠POS)

5. In Figure, POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray lying between rays OP and OR. Prove that :

$$\angle ROS = \frac{1}{2}(\angle QOS - \angle POS)$$



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Line $\angle POR = 90^\circ$ [Given]

$\angle POS + \angle ROS = \angle POR$

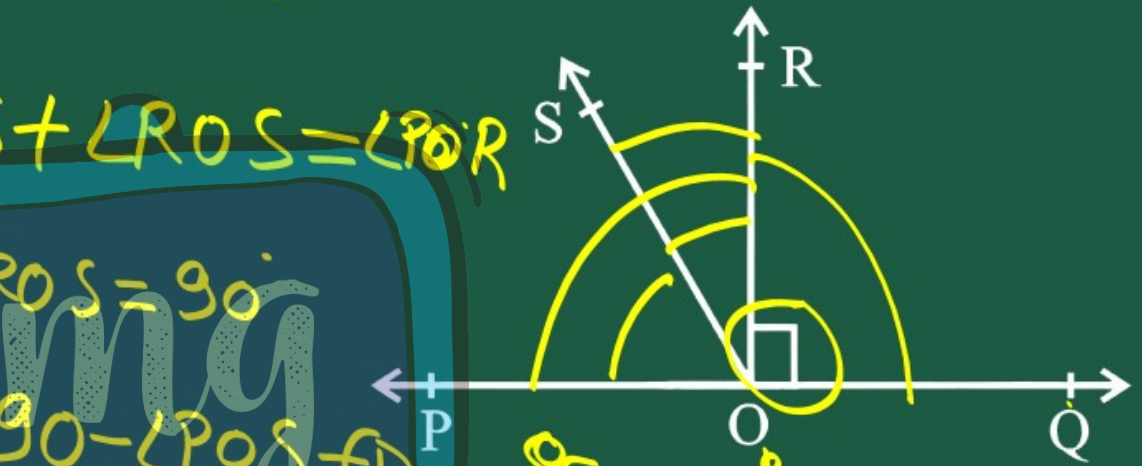
$\angle POS + \angle ROS = 90^\circ$

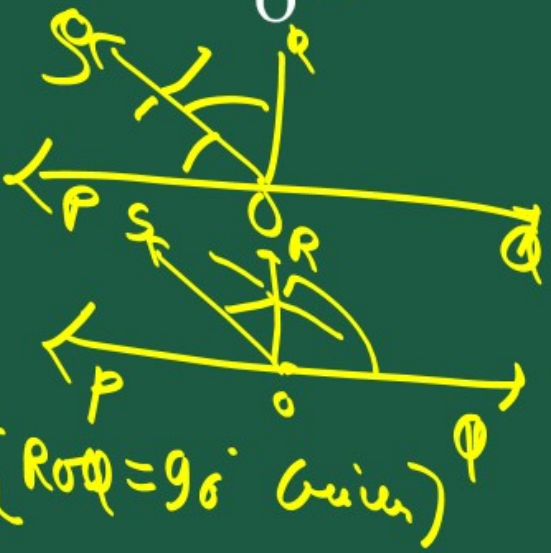
$\angle ROS = 90^\circ - \angle POS$ — (1)

Now $\angle ROS + \angle ROQ = \angle QOS$

$\angle ROS = \angle QOS - \angle ROQ$

$\angle ROS = \angle QOS - 90^\circ$ — (2)





[$\angle ROQ = 90^\circ$ Given]

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$\angle ROS = 90 - \angle POS$ — (1)

$\angle ROS = \angle QOS - 90$ — (2)

eq (2) + eq (1)

$\angle ROS + \angle ROS = \angle QOS - 90 + 90 - \angle POS$

$2\angle ROS = \angle QOS - \angle POS$

$\angle ROS = \frac{1}{2}(\angle QOS - \angle POS)$

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6. It is given that ∠XYZ = 64° and XY is produced to point P. Draw a figure from the given information. If ray YQ bisects ∠ZYP, find ∠XYQ and reflex ∠QYP.

